

U.S. Patent Appln No. 09/622,089

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REMARKS

In the present application, claims 1-48 are pending. All of the claims have been rejected. Claims 1, 17 and 33 have been amended. No new matter has been added to the specification.

I. Transitional Phrases

The Examiner stated, in sections 2, 6 and 10 of the Office Action, that "the claims do not contain a traditional transitional phrase" as required by MPEP § 2111.03. Applicants disagree because independent claims 1, 17 and 33 include "comprising" as a traditional transitional phrase.

II. Claim Rejections under 35 U.S.C. §103

Claims 17-27, 31 and 32 were rejected under 35 U.S.C. §103(a) as being unpatentable over Moss in view of U.S. Patent No. 4,460,330 (hereinafter "Asai"). Claim 28 was rejected under 35 U.S.C. §103(a) as being unpatentable over Moss in view of Asai and further in view of Butt. Claim 29 was rejected under U.S.C. §103(a) as being unpatentable over Moss in view of Asai and further in view of Voegeli. Claim 30 was rejected under U.S.C. §103(a) as being unpatentable over Moss in view of Asai and Butt and further in view of Wietzke. Applicants disagree.

In rejecting independent claim 1, the Examiner states that Moss discloses a fluidized bed reactor (10) having gas injection nozzles (17, 47) on a gas distributor in the lower part of the reactor, partitions (11, 14) that form compartments (16, 41) in the bed, connecting holes (19, 24) in the lower quarter of the bed, and slopes (20, 25) that are greater than the angle of repose of the bed particles. Although Moss does not teach or suggest the particular configuration of the connecting holes claimed in Applicants' invention, the Examiner further states that "one of ordinary skill in the art would have found it *prima facie* obvious to arrive at an optimum or workable range of the size of a connecting hole as well as the connecting whole [sic] to the nozzle distance by mere routine experimentation." The Examiner also states that change in size

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and shape is not patentably distinct over the prior art unless there is evidence that a particular configuration of the claimed invention is significant.

Applicants' original disclosure indicates that changing the position and size of connecting holes and varying the bed heights in a fluidized bed reactor significantly impacts the amount of back mixing from a downstream compartment to an upstream compartment. *See Applicants' Specification*, pg. 2. Specifically, back mixing between compartments in fluidized bed reactors occurs when movement from one compartment to another is performed by connecting holes that are simply holes below partition plates between the compartments. *Id.* Back mixing causes a reduction in the residence time of raw materials in the fluidized bed reactor, which can have a negative impact on the reaction process. *Id.* at 3. The objective of Applicants' invention, based on the prior art, is to provide a fluidized bed reactor having a proper difference in a fluidized bed height between upstream and downstream compartments without causing back mixing. *Id.* at 5. Accordingly, Applicants' assert that the particular configuration of the connecting holes is significant and, as such, makes Applicants' invention patentably distinct over Moss.

All the claim limitations must be taught or suggested by the prior art to establish *prima facie* obviousness of the claimed invention. MPEP § 2143.03. Moss does not teach or suggest a "reactor system, comprising . . . a connecting hole for moving the raw material fines without causing back mixing by a difference in a fluidized bed height from an upstream side compartment to a downstream side compartment" as claimed in Applicants' invention. Rather, Moss discloses that the movement of "solids from the lower end of the entrance ramp 20 causes bed solids on the ramp to move down the ramp via entrance port 19 and into the bed 16 under the action of the weight of bed solids higher up the ramp." Moss, col. 5, lines 61-65. Moss also discloses that "bed solids form a bed 41 in a vessel 42 whose surface is at about the same level as the surface 30 of the bed 16." Moss, col. 7, lines 59-61. This is distinctly different than Applicants' invention as claimed.

Based on the foregoing, Applicants respectfully assert independent claim 1, as amended, is not obvious over Moss. Applicants request reconsideration and allowance of claim 1. Because claims 2-16 now depend from allowable independent claim 1, Applicants also respectfully request allowance of these claims.

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2. Rejection of Claims 17-32 and 33-48 under 35 U.S.C. §103(a)

Claims 17-27, 31 and 32 were rejected under 35 U.S.C. §103(a) as being unpatentable over Moss in view of U.S. Patent No. 4,460,330 (hereinafter "Asai"). Claim 28 was rejected under 35 U.S.C. §103(a) as being unpatentable over Moss in view of Asai and further in view of Butt. Claim 29 was rejected under U.S.C. §103(a) as being unpatentable over Moss in view of Asai and further in view of Voegeli. Claim 30 was rejected under U.S.C. §103(a) as being unpatentable over Moss in view of Asai and Butt and further in view of Wietzke. Claims 33-43, 47 and 48 were rejected under 35 U.S.C. §103(a) as being unpatentable over Moss in view of U.S. Patent No. 4,378,744 (hereinafter "DeFeo"). Claim 44 was rejected under 35 U.S.C. §103(a) as being unpatentable over Moss in view of DeFeo and further in view of Butt. Claim 45 was rejected under 35 U.S.C. §103(a) as being unpatentable over Moss in view of DeFeo and Butt and further in view of Voegeli. Claim 46 was rejected under 35 U.S.C. §103(a) as being unpatentable over Moss in view of DeFeo and Butt and further in view of Wietzke. Applicants respectfully disagree.

In rejecting independent claims 17 and 33, the Examiner again cited Moss to render the claims obvious stating that Moss discloses a fluidized bed reactor. In addition, the Examiner cited Asai and DeFeo to provide supplemental teaching for a fluidized bed device with distribution nozzles that inject gas horizontally or obliquely downward, respectively, into the bed allowing for higher temperatures and more accurate positioning within the bed. The combination of Moss with Asia or DeFeo is deficient because these references, taken alone or in combination, fail to teach or suggest all of the limitations of Applicants' invention as claimed. Specifically, Moss fails to teach or suggest a "reactor system, comprising . . . a connecting hole for moving the raw material fines without causing back mixing by a difference in a fluidized bed height from an upstream side compartment to a downstream side compartment" as claimed in Applicants' invention.

Based on the foregoing, Applicants respectfully request reconsideration and allowance of independent claims 17 and 33. Because claims 18-32 now depend from allowable independent claim 17 and claims 34-48 now depend from allowable claim 33, Applicants also respectfully request that these claims are allowed.

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III. Other Remarks

Applicants notes that the Examiner withdrew her rejection of claims 1-16 under 35 U.S.C. §112, first paragraph with the amendments to claim 1 presented in the response filed on May 18, 2005. Applicants also note that the Examiner withdrew her objection to the drawings due to the claim amendments.

CONCLUSION

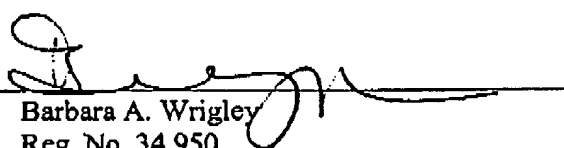
If the Examiner believes that a teleconference would be of value in expediting the allowance of the pending claims, the undersigned can be reached at the telephone number listed below. This response has been filed within the three-month statutory time for response and it is, therefore, believed that no petition or payment for extension of fees is due. If, however, it is believed that any additional fees are necessary, the Commissioner is hereby authorized to charge or credit any such fees or overpayment to Deposit Account No. (Reference #490042-87).

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Respectfully submitted,

OPPENHEIMER, WOLFF & DONNELLY LLP
Attorneys for Applicant

By


Barbara A. Wrigley
Reg. No. 34,950
45 South 7th Street, Suite 3300
Minneapolis, MN 55402
Telephone No. (612) 607-7595
Facsimile No. (612) 607-7100
E-Mail Bwrigley@Oppenheimer.com

Customer No. 34205